DOCUMENT RESUME

ED 248 250 TM 840 489

AUTHOR Schofield, Janet Ward; Anderson, Karen M.
TITLE Integrating Quantitative Components into Qualitative Studies: Problems and Possibilities for Research on Intergroup Relations in Educational Settings.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.; Pittsburgh Univ., Pa. Learning Research and Development Center.
PUB DATE Jan 84
NOTE 45p.; Paper presented at a meeting of the Society for Research on Child Development Study Group on Ethnic Socialization (Los Angeles, CA, January 1984).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Data Collection; *Educational Research; Ethnic Relations; Ethnography; *Research Methodology; Research Problems; Sampling; Statistical Analysis
IDENTIFIERS *Qualitative Research; *Quantitative Research

ABSTRACT

After the terms "qualitative research" and "quantitative research" are defined, this paper considers why it makes sense to integrate these approaches, at least under some circumstances. This discussion necessitates attention to the issue of whether quantitative and qualitative research are inextricably linked to incompatible paradigms, or whether they share enough basic assumptions to make their joint utilization possible and productive. Next, the paper explores the issue of why research on ethnic identity and intergroup relations is especially likely to profit from greater utilization of basically qualitative approaches. Finally, when and how such qualitative research could fruitfully employ quantitative components are analyzed. (BW)

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Integrating Quantitative Components into Qualitative Studies: Problems and Possibilities for Research on Intergroup Relations in Educational Settings

Janet Ward Schofield

Karen M. Anderson

University of Pittsburgh

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This paper was prepared for presentation at the meeting of the Society for Research on Child Development Study Group on Ethnic Socialization at California State University, Los Angeles, January, 1984.

The preparation of this paper was funded by the University of Pittsburgh's Learning Research and Development Center which receives most of its funding from the National Institute of Education. However, no endorsement of the contents of the paper by NIE is implied or intended.

TM 840 489

The last decade has seen a remarkable burgeoning of interest in qualitative research methods in areas of study which heretofore had ignored or even scorned such methods. The most striking change has occurred in educational research. Sociologists, anthropologists, and psychologists concerned with the study of education have all remarked on this change (Bogdan & Biklen, 1982; Reichardt & Cook, 1979; Rist, 1980; Spindler, 1982; Wolcott, 1980) with words which vividly capture the extent of the phenomenon. For example, Spindler (1982, p. 1) speaks of a "meteoric rise" in interest in educational ethnography and Rist (1982, p. ix) discusses the "explosion" of interest in the application of qualitative methods to the study of education.

Other fields have also begun to appreciate the potential contribution of qualitative methods. For example, although qualitative methods were occasionally employed in evaluation research as much as twenty years ago, it is only recently that calls for their utilization have begun to become both widespread and effective (Filstead, 1979; Ianni & Orr, 1979; Knapp, 1979; Patton, 1980). The use of qualitative methods in the study of organizations has also gained increasing attention. Indeed, Administrative Science Quarterly devoted a special issue to this topic not too long ago (Administrative Science Quarterly, 4, 1979). Van Maanen (1982, p.13) comments that the market for textbooks on qualitative research is "booming" and sees this as just one of many signs of the increasingly important plan that qualitative research is playing in many of the social sciences.

This growing appreciation of qualitative techniques is a positive development since it broadens the range of approaches researchers are likely to consider in deciding which of the many available methods is most appropriate for the problems they are studying. Additionally, and equally important, the increasing acceptance of qualitative research opens up the possibility of integrating elements of qualitative and quantitative methods when this is desirable for the problem at hand. Although such integration is an exciting possibility, it is not as yet common. In fact, whereas there is an increasing awareness of the advantages of incorporating qualitative components into basically quantitative projects, there has not been a similar amount of attention devoted to issue of when qualitative research might benefit from a greater utilization of quantitative components. Because we strongly believe in the value of qualitative research but also believe that such research may sometimes be strengthened by the inclusion of quantitative components, this paper will address this latter issue.

In writing a paper on such a topic one has two basic choices—to write a "domainless" purely methodological piece or to anchor one's observations by examining how they emerge out of and apply to a particular substantive domain. We chose this latter route, primarily because one fertile source of ideas for an undertaking such as this is an examination of extant qualitative work to see what present practice suggests about fruitful ways to incorporate quantitative components. Choosing a broad substantive domain as a focus for the analysis suggests a literature to work from and adds a useful concreteness to the analysis. The focus chosen for this paper is a broad one--really two interconnected ones—the areas of ethnic identity and intergroup relations. The special

advantages of this particular focus will be discussed in more detail later. However, before addressing these we will provide the reader with an overview of the broader paper. First, we will briefly lay out what we mean by the terms quantitative and qualitative research. Then, we consider why it makes sense to integrate these approaches, at least under some circumstances. This discussion necessitates attention to the issue of whether quantitative and qualitative research are inextricably linked to incompatible paradigms or whether they share enough basic assumptions to make their joint utilization possible and productive. Next, we explore the issue of why research on ethnic identity and intergroup relations is especially likely to profit from greater utilization of basically qualitative approaches. Finally, we turn to an analysis of just when and how such qualitative research could fruitfully employ quantitative components.

Qualitative and Quantitative Approaches to Research: A Brief Overview

We will use the term qualitative research to refer to a relatively wide array of increasingly popular research techniques often referred to by others as qualitative research, naturalistic research or even ethnography and described in detail elsewhere (Bauman, 1972; Bogdan & Biklen, 1981; Bogdan & Taylor, 1975; Erickson, 1979; Reichardt & Cook, 1979; Spindler & Spindler, 1982; Wilson, 1977; Wilcox, 1982; Wolcott, 1975). Research designated by these diverse terms generally: (a) is conducted in natural settings, such as schools or neighborhoods, (b) utilizes the researcher as the chief "instrument" in both data-gathering and analysis, (c) emphasizes "thick description," that is, describing

events and their social meaning (Ryle cited in Geertz 1973), (d) tends to focus on social processes rather than looking primarily or exclusively at outcomes, (e) employs multiple data-gathering methods, including observation and interviews, and (f) uses an inductive approach to data analysis extracting general statements from the mass of particular detail which constitutes the data base. This approach, of course, has been used for decades by anthropologists to describe various cultures and the behavior patterns characteristic of their members. However it is only recently that the potential value of such an approach to the study of issues like education and ethnic identity in this country has become widely acknowledged.

In contrast to the holistic and contextual approach taken by qualitative research, quantitative research generally focuses on the testing of specific hypotheses that are smaller parts of some larger theoretical perspective. This approach follows the traditional natural science model more closely than qualitative research, emphasizing experimental design and statistical methods of analysis. Quantitative research emphasizes standardization, precision, objectivity, and reliability of measurement as well as replicability and generalizability of findings. Thus, quantitative research is characterized not only by its focus on producing numbers but by an approach to the research process which generates numbers which are suitable for statistical tests. Others (Goetz & LeCompte, 1981; Rist, 1977) have pointed out that using the terms qualitative and quantitative may imply the existence of a dichotomy when it may be more accurate to think of these approaches as different ends of a continuum. Although aware of this danger, we will employ them because the effectively capture the essence of the distinction between

the two approaches under discussion.

The Need for a Rapproachment Between Qualitative and Quantitative Research Methods

Reactions to the rapid gain in popularity of qualitative methods have been mixed. Naturally, those who engage in this sort of research are pleased with its growing visibility and acceptance, although some are concerned that this sudden spurt of interest combined with the surface simplicity of most qualitative research methods has attracted untrained researchers who claim to do such research without really understanding the complexity of the process or the discipline it requires (Fetterman, 1982; Rist, 1980; Wolcott, 1980). Those identified with more traditional quantitative research have tended to be less positive, at least in part because of concerns over the apparent subjectivity of many qualitative data-gathering and analysis techniques. However, there is a growing tendency, even on the part of some researchers strongly identified with quantitative research methods, to accept or even to advocate the utilization of qualitative methods based on a recognition of the particular strengths of each. Exemplifying this trend is the shift in the position of Donald Campbell. Campbell and Stanley's (1966, p. 6) widely used book on quasi-experimented design written almost twenty years ago contended that the "one-shot case study," which is the model for much of today's qualitative research, has "such a total absence of control as to be of almost no scientific value." Much more recently Campbell (1979, p. 52) wrote a paper to "correct some of (his) own prior excesses in describing the case study approach" in which he takes the, for many, rather startling position that when qualitative and quantitative results

conflict, "the quantitative results should be regarded as suspect until the reasons for the discrepancy are well understood."

The growing respect for qualitative methods implicit in Campbell's statement seems to have many causes, not the least of which may be a growing disenchantment with quantitative research due to factors such as the relatively trivial amount of variance often explained, the failure to achieve much productive validity, and the highly technical nature of many quantitative data-analytic techniques which makes the research virtually incomprehensible even to well-educated readers (Van Maanen, 1982). In addition, recent years have seen a number of important statements which argue against the traditionally prevailing view that qualitative and quantitative work are based on fundamentally different paradigms and are thus competing and irreconcilable ways of approaching research (Cook & Reichardt, 1979). Scholars of this persuasion, many of whom have been deeply involved with evaluation research in the field of education, argue that the distinction between qualitative and quantitative research is a matter of degree rather than of a basic difference which creates an unbridgeable chasm between the two camps (Campbell, 1979; Filstead, 1979; Spindler, 1982). One of the most lucid and persuasive statements on this side of the debate is Reichardt and Cook's (1979) recent paper in which it is argued that method types are not irrevocably linked to different paradigms.

Reichardt and Cook's paper begins with a listing of the characteristics which have traditionally been attributed to the qualitative and quantitative paradigms. For example, the quantitative orientation has traditionally utilized controlled experimentation in the

testing of specific hypotheses. Here, the emphasis is on the statistical analysis of reliable data gathered in a controlled, systematic but often very obtrusive way. The quantitative researcher is assumed to have an "objective" view of the situation; additionally, the situation is assumed to be a stable rather than changing reality.

The qualitative researcher, on the other hand, is typically seen as employing naturalistic methods such as participant observation to develop "grounded theory" (Glaser & Strauss, 1964). The emphasis is on validity, on obtaining "real," "rich," "deep," data which illuminate everyday patterns of action and meaning from the perspective of those being studied. Thus, the researcher is assumed to be "close to the data" and to have a subjective, rather than objective, view of the situation. Related to this, the qualitative research tends to be descriptive, process-oriented, and views "reality" as dynamic and changing.

However, Reichardt and Cook (1979) next proceed to argue that method-type is not irrevocably linked to paradigm-type and that the qualitative and quantitative paradigms are neither as rigid nor as incompatible as traditional thought would have it. For example, they argue that all research has important subjective elements and that the characterization of quantitative research as objective ignores important aspects of subjectivity which enter at virtually every point from hypothesis formulation, to the selection of indices, to the interpretation of the data. Similarly, they point out that qualitative data has no corner on validity, raising participant observation of a visual illusion as a case in which quantitative methods would lead to more valid conclusions about the stimuli than qualitative ones.

If qualitative and quantitative methods are not rooted in opposite and irreconcilable paradigms but rather are typically more or less subjective, obtrusive or the like, there is no reason why they can not be utilized simultaneously. In fact, a number of scholars have recently argued not only that quantitative and qualitative approaches can be utilized jointly but that they should be so utilized (Campbell, 1979; Cook & Cook, 1977; Erickson, 1977; Eisner, 1977; Campbell, 1979; Fetterman, 1982; Filstead, 1979; Sieber, 1973; Light & Pillemer, 1982; McClintock, Brannon, & Maynard-Moody, 1979; Spindler, 1982; Tikunoff & Ward, 1978). The basic argument behind this position is that these two research strategies tend to have complementary strengths. Briefly summarized, experimental or quasi-experimental research coupled with quantitative data analysis procedures is typically viewed as the best available way to reduce the ambiguity about causal connections between variables. Since knowledge about causal relationships is so vital to the scientific enterprise as well as to many social policy decisions, maximizing available information about causal chains is obviously of crucial importance. However, experimental and quasi-experimental methods also have some drawbacks. First, they are not generally used in ways which illuminate the processes accounting for the effects they document. Second, they are far from ideal for exploring the impact of a whole variety of contextual factors which cannot be clearly specified in advance. Furthermore, they tend to be rigid since change of course in midstream in response to new information is difficult when experimental designs are being utilized (Campbell, 1979). Qualitative research, on the other hand, is weak where experimental and other qualitative designs are strong and strong where such designs are weak. Specifically,

qualitative research is not generally able to specify causal connections with the degree of certainty or precision that many quantitative strategies can. However, it is ideally suited to suggesting ideas about social processes, to exploring the context in which the phenomena under investigation occur, and to capturing with both vividness and subtly the perceptions of the individuals being studied.

Although many researchers have called for simultaneous utilization of quantitative and qualitative strategies, examples of research which do so are few and far between. Some can be found (e.g., Fetterman, 1982; LeCompte, 1969; Tikunoff, Berliner, & Rist, 1975; Trend, 1978; Wilcox, 1982), but their numbers are small, especially when one considers the volume of the chorus calling for such integration. There are a number of reasons for the relative scarcity of such studies. For example, Reichardt and Cook (1979) point out that the joint use of these two strategies is likely to be expensive and time consuming. Furthermore, combining two different types of methodologies obviously requires a much broader range of research skills than using either one by itself.

Although the above reasons help to explain the general failure of researchers to act on other scholars' or even their own exhortations to combine quantitative and qualitative methodologies, there is another important but largely unrecognized reason. Although there is a vast literature on traditionally quantitative research methodology and a smaller but still substantial literature on qualitative methodologies, there is extremely little guidance available on how to combine these two approaches and use them jointly. Knowing how to handle these two research strategies separately does not necessarily give guidance on how

to handle their interaction, as indicated in Light and Pillemer's (1982) paper on utilizing both types of data in literature reviews. Indeed, Trend (1978) provides a fascinating discussion of the difficulties encountered in a large scale evaluation research project when the analysis of qualitative data from a participant observer produced conclusions which could not easily be reconciled with those emerging from analysis of the quantitative data gathered at the same research site. Only after considerable difficulty and frustration did a new interpretation of the data emerge which accounted for both sets of findings in a convincing way. Trend (1978, p. 83) concludes, with considerable understatement, that "procedures for using the two (quantitative and qualitative methodologies) together are not well developed."

Unfortunately, Trend like virtually all others who have advocated the combination of qualitative and quantitative techniques, does not take the next step of systematically exploring how these methods might best be integrated. In fact, he explicitly leaves that task to methodologists. To date a very few have taken up this challenge. This is especially true with regard to the issues of how and when one might usefully incorporate quantitative techniques into basically qualitative projects, for as indicated earlier while evaluation researchers have begun to explore how to add qualitative components to primarily quantitative research endeavors, (Reichardt & Cook, 1979), relatively few scholars have addressed the other side of this question--that is how to incorporate quantitative components into primarily qualitative research. Indeed, the one text now published which focuses exclusively on qualitative research in education contends pessimistically that integrating quantitative

components into qualitative projects is generally likely to produce little more than "a big headache" (Bogdan & Biklen, 1982, p. 39). We believe one of the major reasons that this is often true is that so little systematic attention has been given to the issues of when such integration is most likely to be productive and how to perform it most efficiently and effectively. For example, careful reading of numerous volumes on qualitative research reveals that they are close to silent on such issues (e.g., Bodgan & Bilken, 1981; Merton, Coleman, & Rossi, 1979; Van Maanen, Dabbs, & Faulkner, 1982).

However, there are several potentially useful sources of ideas on this topic which when constructively integrated can be of use to those doing qualitative work. The first and perhaps most obvious sources are the scattered papers which do indeed address particular aspects of this general methodological issue (Sieber, 1973; Spindler, 1982; Zelditch, 1962). Second and equally useful should be an examination of existing qualitative studies. Although most basically qualitative research does not include major quantitative components, it does not typically eschew the utilization of numbers or other typically quantitative research techniques entirely. Most qualitative research projects of necessity involve some rudimentary quantification, even if only that implicit in stating that some phenomena are more frequent than others. Many involve considerably more than that (Suttles, 1976). Examination of present practice should suggest though induction suggest at least some of the types of occasions in which quantitative components are likely to be useful in qualitative projects. Thus, a wide variety of qualitative studies were examined closely with an eye to ferreting out for consideration instances in which such integration occurred. The final

resource useful in suggesting ideas about the investigation of quantitative components into qualitative work was the first author's experience in directing a four-year research project on social relations between black and white children in a desegregated school (Schofield, 1982) which, although clearly ethnographic in nature, included a wide array of basically quantitative techniques including experiments (Sagar & Schofield, 1980), quasi-experiments (Schofield & Sagar, 1977; Schofield, 1979), the development and utilization of quantitative observational coding systems (Sagar & Schofield, 1983; Schofield & Francis, 1982), and sociometric and other questionnaires (Schofield & Whitley, 1983; Whitley & Schofield, 1984).

Ethnic Identity and Intergroup Interaction: The Substantive Focus for a Methodological Analysis

This paper will focus on the integration of qualitative and quantitative methods in the study of ethnic identity and intergroup relations in educational settings. We have chosen this focus for three reasons. First, enough qualitative work has been done in these areas to provide a literature which can be examined to see just what present practice suggests about ways in which quantitative components can fruitfully be incorporated in such studies. Second, as indicated above, the first author has extensive personal experience in directing a qualitative study which utilized quantitative techniques to an unusual extent to explore how issues related to ethnic identity influence peer relations in a desegregated school. Third, and perhaps most importantly, the related areas of ethnic identity and intergroup relations in educational settings seem especially likely to profit from a qualitative

approach. Although there is a long tradition in anthropology of taking a qualitative approach to the study of ethnic identity, most of the work in this area performed by psychologists and sociologists has fallen within the quantitative tradition. Similarly, the traditional approach to examining intergroup relations in desegregated schools has been quantitative (Gerard & Miller, 1975; Patchen, 1982; St. John, 1975; Stephan & Feagin, 1980). Much has been learned from this research, but we would argue that the related areas of ethnic identity and intergroup relations are ripe for qualitative investigation. Although there is no necessary link between paradigm and methodology it is true that qualitative researchers tend to emphasize understanding perceptions and feelings, the ways in which groups create systems of meaning, and the behavior patterns which typify groups. We would argue that the study of ethnic identity could greatly profit from such an orientation because ethnic identity is preeminently a socially constructed system of meaning which includes both rules about how ethnicity is to be determined and what affiliation with a particular group entails. Let us illustrate this point with a brief discussion of ethnicity in Guatemala taken from Pitt-Rivers' (1977) fascinating account of the concept of Razo in Latin America. The Guatemalan census of 1940 classified the population into five groups based on a physical concept of race. However, so many problems and ambiguities arose and the classifications were so at odds with the functionally important categories that the 1950 census discarded this practice and simply dichotomized the population as Indian or Ladino--which included among others blacks, Chinese and even Mormon missionaries. Of course, the problem of defining what was meant by Indian still arose and was complicated enough to require an investigation

of how this concept was interpreted in various parts of the country. This study could discover no consistent criteria. Indeed the prologue to the census stated "if in one municipality the principal characteristic identifying a person (as Indian) was dress, in another this was secondary." Thus census takers were specifically instructed to assign individuals to the category Indian if that classification was generally applied to them within their community. Genetic phenotype was reasonably well correlated with the categories to which communities assigned individuals, but it was by no means the determining factor. Pitt-Rivers (1977, p. 319) comments "In fact, many Ladinos look Indian. Conversely, many members of Indian communities look European, but they are no less Indian on that account, either in Hispanic or Indian eyes."

Pitt-Rivers also comments that the presence of individuals classified as Indian is best explained by their relations to people who are not Indians, thus making clear the intimate link between ethnic identity and intergroup relations, the second substantive focus chosen as a basis for the methodological observations which will soon be presented. This area too could greatly profit from further qualitative work as evidenced by St. John's (1975) conclusion at the end of her extensive review of the impact of school desegregation on the children involved:

> The most needed type of research at this juncture is probably not a mammoth longitudinal testing program....far more illuminating would be small- scale studies involving anthropological observations of the process of interracial schooling, across settings diverse in black/white ratios and in middle- class/lower-class ratios, and also diverse in their educational philosophies and techniques.

Intergroup relations, like ethnic identity, is an area in which social meanings and nuances can be of extraordinary importance. Let us illustrate this point with just one example, Triandis' work on subjective culture. Triandis argues that one cause of friction in intergroup relations is that the fact that members of different cultures interpret specific behaviors quite differently. Since certain behaviors have different meanings to different participants in an intergroup interaction, the individuals may react in ways which mystify, irritate or annoy each other. For example, Mehan (19) mentions that virtually every qualitative study of Puerto Rican or Mexican-American children in classrooms with Anglo teachers has noted that these children are criticized by their teachers for disrespect when they avert their eyes, especially when the teacher is criticizing or disciplining them. Yet in many Hispanic homes such behavior is taught as a way of showing respect, just the opposite of the interpretation put on it by Anglo teachers. A related problem arose in a study by the first author and a colleague (Sagar & Schofield, 1983). The aim of this study was to characterize peer behavior in desegregated classrooms. A quantitative coding scheme was developed to achieve this purpose, but the categorization of peer behaviors was far from straightforward. For example, one of the topics we wanted to explore was how much aggressive behavior occurred and to whom it was directed. Yet observation of the classrooms suggested, and later experimental work confirmed, that black and white children had different perspectives on whether certain acts were indeed aggressive. Further certain behaviors were perceived as more aggressive when performed by a black than by a white (Sagar & Schofield, 1980). Thus, a uniform coding scheme applied to all children had to violate the

subjective meaning of certain behaviors for those involved. Yet applying different rules for coding the behavior of blacks and whites had so many drawbacks that it was untenable. Ultimately coding rules were developed and applied but in our judgment the information which emerged from this study was less illuminating and useful than that which emerged from a qualitative study of the same issues performed by the same team.

In summary, then, qualitative work on ethnic identity and on intergroup relations yields the promise of illuminating important aspects of these subjects. For this reason, more qualitative work would be a useful counterbalance to the quantitative approach which has dominated psychological and to a lesser extent sociological work in these areas. Although more qualitative work is needed, there is a sufficient body of qualitative work available on these topics to enable us to review present practice and to see where these much needed qualitative approaches to the study of ethnic identity or intergroup relations could profit by drawing on the practices usually associated with quantitative work.

The Utilization of Quantitative Techniques in Qualitative Studies of Ethnicity and Intergroup Relations

The Use of Numbers

The incidental use of a few numbers can hardly be considered a departure from traditional qualitative techniques. Yet as a starting point it is useful to examine both what sorts of things are frequently quantified in qualitative studies and to what end these numbers are used. Even those ethnographies which make little use of numbers themselves or

techniques associated with quantitative research frequently use some incidental quantification in describing the research site and its context, the research participants and the project methodology (e.g., Bossert, 1979; Gans, 1962; Hanna, 1982; Rist, 1978; Valentine, 1978). One of the most typical procedures is to use census data, unemployment rates, and other similar government-generated figures to describe the neighborhood or population studied. Qualitative researchers also effectively use substantive "etic" information which they have collected when it is relevant and readily available. For example, educational ethnographies frequently present information on the amount of time devoted to various purposes (Rist, 1973; Warren, 1982; Wolcott, 1973). Studies of ethnic communities or of the behavior of specific members of such communities often present quantitative information about the physical attributes of the people studied, such as their age, height, or weight (Liebow, 1967). Also fairly commonly presented is information on the cost of various items, the wages people receive, etc. (Valentine, 1978; Wolcott, 1980).

Several factors seem to account for the usage of quantitative information in the two ways described above including; a) the ready availability of much government-generated quantitative information such as census data, and b) the precision and relative objectivity inherent in utilizing numbers rather than words to convey certain types of information. For example, indicating that the classes studied averaged 33 students rather than calling them "quite large" is more precise and avoids the implicit use of a standard which readers may not share.

However, two caveats are warranted about even such straightforward and common types of usage of quantitative elements. First, as Bogdan and Biklen (1982, p. 113) point out, the concept of "real rates" is a misnomer since "rates and counts represent a point of view. . .toward people, objects and events." Thus, in using at face value numbers generated by others the researcher implicitly accepts a particular set of definitions and assumptions.

This point is especially crucial in studies of topics such as ethnic self-identification, ethnic identity and inter-ethnic interaction. Ethnic identity is, after all, a construct referring to one's subjective sense of self rather than to certain physical or cultural criteria that someone else might use to label one as belonging to a particular group. The extent to which subjective feelings of ethnic identity can vary from the picture implied by official statistics is exemplified by Ogbu's (1974) discussion of the differences between the classification system used for official purposes such as data gathering and reporting by the Stockton schools and the subjective sense of ethnic identity of the city's residents. Ogbu reports, for example, that some individuals classified officially as Anglo regarded themselves as black or, much more commonly, as Mexican. It seems reasonable to assume that Ogbu's respondents, who were adults, had some objective basis for their self-reported ethnic identity which was missed in the official classification process rather than that they misperceived themselves as Mexican when they were "really" white. If this is the case, standard procedures for measuring ethnic self-identification in their children, such as comparing the results of a matching or categorization test with the child's "real" ethnicity based on school records or even possibly on

observed physical characteristics, could lead to classifying them mistakenly as misperceiving their real ethnic group membership. The point to be made here, then, is that official counts and categorizations reflect certain assumptions which may not be shared by the people being categorized. The arbitrariness of many classification procedures and the subsequent possibility for real gaps between an appropriate, subjective sense of ethnic group membership and official classification is made clear when one considers the lengths that countries like South Africa and the United States in the not too distant past, have gone to in order to decide just who should be considered black.

The danger of assuming that the official classification of an individual reflects his or her own sense of self the ways in which others perceive this individual is well illustrated by a problem which arose at a school in which the first author was conducting a study of relations between black and white children (Schofield, 1982). Teachers trying to select a small number of students for a biracial committee set up to improve relations between blacks and whites chose a seventh grader, an intelligent but very quiet child whom I will call Antonio, as one of the black participants. Antonio regarded himself as "mixed" since one of his parents was white and the other was black. Both black and white members of the research team had assumed that he was white since his facial features were basically Caucasian and his skin tone was very light. Antonio's peers were angry about the committee's composition, some not realizing that Antonio could be considered black and others arguing that he was behaviorally as well as physically about as white a black as one could imagine. Thus a research report that took at face value the official school figures which showed a racially balanced committee would

be incomplete at best. Similarly, a study of racial self-identification which compared Antonio's responses to supposedly correct responses based on the researchers initial classification of him as white would have been misleading given his mixed parentage.

Qualitative researchers must not only beware of the often unstated and sometimes incorrect assumptions underlying the figures gathered by other sources, they must also approach the task of quantifying even seemingly etic information in a way which benefits from their emphasis on an in-depth understanding of the topics studied. For example, Valentine's (1978) ethnography of a poor black community concluded that food prices averaged over twenty-percent higher in that neighborhood than in surrounding white ones. However, it then goes beyond this to point out that the quality of the goods available in the ghetto markets is often poor relative to similar products sold in nearby middle-class areas. Thus the difference in value received is even greater than it might appear to be based on the etic information on costs alone.

Valentine's work on food prices is useful as an example of the ways in which ethnographers often collect and present quantified information. First, the information was collected in a fairly systematic way, but not one designed to yield highly reliable, maximally precise conclusions. Second, the presentation is fairly casual, in that numerous fine details about the ways in which the data were collected are omitted.

Both of these common practices are considered serious if not fatal defects in traditional quantitative research. Yet I would contend that they are not terribly serious problems in ethnographic works as long as it is absolutely clear to both the researcher and his or her readers that the ethnographer is engaged in a process which I will call "ballparking," i. e. producing a very rough estimate of a particular phenomenon.

Metz, in her ethnographic study of authority in two desegregated high schools, deals explicitly with the ballparking issue. More conservative than most, she generally avoids "ballpark" figures and states clearly that the numbers which are presented are only very rough estimates of the actual situation. She writes (p. 13)

> Since I did not draw random samples of either events or persons, I cannot generalize from the frequency of any event or characteristic in my sample to its frequency in the school... I intentionally use such phrases as "few teachers said this"... If I were to report that "three out of fifteen teachers"... behaved in such and such a way, I would imply that these proportions reflected patterns in the whole school. My sample does not allow such inferences. My quantitative statements are only broad approximations of the situations in these schools.

A somewhat more common position is illustrated by Smith and Geoffrey's (1968) statement that a teacher engages in 767 personal interactions in a morning and Jackson's (1968) observation that a teacher engages in "as many as 1,000 interpersonal interchanges each day." Neither of these authors believes or would have his readers believe that these numbers are precise. Yet both use them skillfully to suggest the

order of magnitude of the phenomenon they discuss.

Ballparking has a place in qualitative work when generating really precise figures would not serve to refine the argument and would consume an unwarranted amount of time, effort or money. However, it is a potentially dangerous practice since it can easily be mistaken for what I will call specifying, i.e. gathering data according to all the canons of methodology designed to increase the likelihood that one's data are reliable and precise. Indeed, it is not uncommon for it to be unclear to the reader whether the ethnographer is ballparking or specifying. Further, even when it appears that an ethnographer has intended to specify, traditional ethnographic styles of writing prevent or at least made very difficult the presentation of sufficient information on the procedures employed to let readers judge for themselves whether the specifying has been appropriately performed. For example, intercoder reliabilities are generally not provided even when the numbers presented are the end result of fairly complicated decision-making processes. For example, a paper whose first author is a highly respected past president of the Council on Anthropology and Education categorizes classroom activities like "teacher circulating, giving individual attention" and "teacher waiting for class" and presents data on the frequency and duration of such events without even mentioning whether reliability estimates were made (Erickson & Mohatt, 1982).

Ballparking and the generally accepted practice of not going into exhaustive detail about the procedures used to generate ballpark data seem to be acceptable for certain purposes. However, problems arise when the methodological and presentational conventions which have grown up for

ballparking are applied in cases in which the ethnographer is specifying or in which it is unclear which process is occurring. We will illustrate this point by examining the Erickson and Mohatt paper mentioned above. We have chosen this paper because it exemplifies a trend toward utilization of quantitative analysis of videotape and/or audiotape within a rich qualitative context. Being on the cutting edge of such a trend, Erickson and Mohatt make an important contribution by providing a model for similar future work but, simultaneously, may not have discovered how best to deal with all the issues such a trend raises. The paper sets out to explore a hypothesis based on the prior work of another anthropologist that there are certain cultural differences between Native American culture and that of the dominant white middle class which cause difficulties for Indian children taught by white teachers. To determine if this finding, based on the study of one particular group of children could be generalized, Erickson and Mohatt compared the teaching style of two competent and experienced teachers--one Indian and one white--who were serving in schools in a different Indian culture area. Roughly twelve hours of videotaping was conducted in each classroom. Some of this material was subjected to intense fine-grained analysis focusing on a variety of teacher and student behaviors. The result of this analysis is presented in numerous tables and in statements such as "Teacher II uses three times as many directives as Teacher I. and issues them at a rate more than twice as fast..." (Erikson & Mohatt, 1982, p. 152). No statistical tests were conducted. The paper concludes (p. 169) that "Microethnographic analysis reveals the specific features of cultural organization of social relationships in communication which differ, albeit slightly, from "mainstreaming" ways of teaching.... These

findings have implications for pedagogy in the educative of Native American children..."

The advantage to an analysis strategy and a quantitative presentational style like that of Erikson and Mohatt is that it allows efficient presentation of data on a great many points which relate to the basic question of whether there are cultural differences in teaching style. Further, it provides the reader with a somewhat clearer picture of the magnitude of these differences than would completely qualitative statements to the effect that Teacher I was more or less likely to do certain things than Teacher II. The problem, of course, is that the numbers, once produced, imply a precision which they may well not have. An even more basic issue in many ethnographic studies, as implied in the earlier cited quote from Merz, is whether the data has been gathered in a way which makes it reasonable to make even rough statements about the frequency, prevalence or duration of many phenomena.

Two considerations may account for the frequent practice of omitting detailed information on data gathering and analysis even when ethnographic studies feature quantitative analysis as an important part of their results. First, as indicated above, since statistical tests are rarely performed and the emphasis is often on an overall pattern rather than any one particular finding, such information may seem unnecessary. Second, the sort of detail customary in traditional quantitative reports is quite incompatible with the literary narrative form which makes ethnographies so interesting to read. We would suggest however, that readers would be well-served by extended footnotes or by appendices which would supply such information when quantitative results are featured

importantly and/or when they are used to specify rather than to ballpark, since qualitative researchers should be the first to acknowledge that the way in which these numbers are produced bears importantly on how they should be interpreted.

The Use of Sampling Procedures

So far this paper has discussed the use of numbers in ethnographic works, but the utilization of numbers is no more than the most rudimentary of the set of procedures and conventions generally associated with the term quantitative methodology. We will now turn to some of these other aspects of quantitative methodology to see both how they might enhance basically qualitative research and what caveats must be kept in mind should an ethnographer think of utilizing them.

Many qualitative studies would benefit from paying heed to practices generally associated with quantitative methodology with regard to sampling. This is not to say that qualitative studies should slavishly employ random sampling procedures, since there are many situations in which such a procedure is far from optional. However, we would contend that at each point in the selection of research sites and of individuals for study within sites the qualitative researcher should carefully consider the trade-offs involved in using non-random methods. In general, random sampling is less likely to be useful in site selection than at other points in ethnographic research. This is so because ethnographic researchers usually study just one or a very small number of sites. Random selection insures randomness but nothing more. Thus, if an ethnographer randomly selected for study one school from the twenty

schools in a particular school system there is no a priori reason to believe that that school is representative of that system in any meaningful way. A far better approach is one common in qualitative research in which the researcher decides what type of study is to be made and then looks for a setting or settings which appear appropriate. Exemplifying this sort of approach is Wilcox's (1982) recent study. The goal of this study was to see whether students in basically upper-middle class schools are socialized differently in school than their peers from lower-middle class schools. Using the method known in anthropology as controlled comparison (Nader, 1964) Wilcox selected two schools as similar as possible except for the variable of interest, class background of the student body. This seems a reasonable and defensible strategy, although when the criteria one uses for selecting sites end up producing several possible candidates in each category one might at least want to consider random sampling from these candidates.

Although it appears unlikely that random selection procedures are generally to be desired in site selection, we would argue that they are severely underutilized in ethnographic work in choosing areas or individuals within sites for study. For example, it is quite rare for ethnographers to select randomly classrooms within given schools or neighborhoods within a community. Although randomness does not guarantee representativeness, especially when small numbers of subunits are studied, there are reasons to consider random or, more likely, certain stratified random procedures here. For example, an ethnographer interested in how ethnicity influences teacher behavior could classify teachers according to ethnicity, classify them again on the basis of other criteria such as years of experience or the like and then randomly

select from teachers who meet all the criteria for inclusion in the study. The traditional ethnographer might well ask, "Why do this? Isn't it better to find teachers who are interested in cooperating and who seem like good informants?" Our response is that whether or not one realizes it one always uses some procedure in selecting subsites for study. A random selection procedure provides a good place to start; it is clear, systematic and unbiased. One may decide that the teachers' attitude towards the study is sufficiently crucial that randomly selected individuals who appear uncooperative will be replaced by another more cooperative randomly selected individual. Although such a procedure is not consistent with the cannons of quantitative research in which one is performing inferential statistics, I would argue that it is likely to produce a less potentially unrepresentative set of subunits than the procedures which are typically used now by ethnographers without too much loss in rapport with informants.

Similarly, in choosing individuals within sites for study stratified random procedures should be considered. Used judiciously or combined with theoretical sampling (Glaser & Strauss, 1964) such a strategy can increase a study's internal validity without compromising the flexibility which is the hallmark of qualitative research. For example, interviewing a random sample of students from classes chosen because they seem especially likely to yield the sort of data of interest to a particular investigation gives one the advantages of theoretical sampling while increasing the internal validity of the results. This is especially important since research suggests that participant observers may tend to gravitate toward certain types of informants (Vidich & Shapiro, 1955). Although such random selection is sometimes used in qualitative studies

(c.f., Hanna, 1982; Leacock, 1969; Schofield, 1982), it is also frequently not used when it could be without compromising a basically qualitative design. The utilization of random sampling procedures need not function as a straight jacket, precluding the ethnographer from consulting especially insightful or well-informed informants. Rather, the two procedures can supplement each other as long as the function of each is clearly understood.

The Use of Questionnaires and Observational Checklists

Qualitative studies often look in-depth at some relatively small segment of an educational institution or a community. For example, many studies look at no more than a few classrooms within a school (Erickson & Mohatt, 1982; Rist, 1973; Smith & Geoffrey, 1968). Similarly, Valentine (1978) has pointed out that qualitative studies of the behavior patterns of various racial and ethnic groups are typically conducted in just one community or, more frequently, in one neighborhood within a larger community. It would certainly lend weight to the findings in such studies if one knew that the patterns found were not unique to the particular classroom or small neighborhood studied. Yet in-depth study of a large number of classes or neighborhoods is often impractical. Here, the use of quantitative components, such as survey research or certain types of behavioral check lists may be appropriate. For example, Wilcox (1982) intensively studied one first grade classroom in a middle class school and one in a comparable working class school. Then to see whether the contrasting behaviors which emerged from the in-depth study were characteristic of behaviors found in each school, much briefer observations were conducted in several other classrooms at each site.

Such a procedure preserves the traditional ethnographic emphasis on a rich description of a particular milieu but provides a relatively efficient way of seeing whether the core of the analysis reflects patterns which are idiosyncratic to the very small social unit studies. Although a concern with the generalizability of findings is more typical of quantitative than qualitative work, we would argue that many qualitative projects could profit from Wilcox's example.

In our own work questionnaires were used not only to see if patterns apparent in the classrooms studied were characteristic of the school more broadly, but to help interpret the meaning of these patterns. For example, observation in a relatively small number of classrooms suggested that boys interacted more with peers of the other race than did girls. Sociometric questionnaires administered to a much larger number of classes confirmed that this phenomenon was widespread. However they also demonstrated something that the observation could not. Specifically, the results of the statistical analyses of the sociometric data demonstrated clearly that white girls showed a very strong in-group preference which black girls did not. Classroom observation had given us some inkling that this was the case, but did not provide really convincing evidence to this effect since it was often hard to tell who initiated a specific interaction and even harder to determine who terminated it. Further, later interviews suggested that many black girls who were perfectly open to interacting with whites were sometimes reluctant to initiate interactions for fear of rejection, so that cross-race initiation rates might not have been very different for black and white girls even though openness to cross-race interaction differed considerably.

The Use of Center Analysis

Survey or questionnaire research is only one way to efficiently gather data from a larger number of instances that the ethnographer can study in depth. Another possibility is the utilization of formal content analysis procedures. For example, if an intensive study of a few neighborhoods suggests that certain values are more important to some ethnic groups than others, a content analysis of local newspapers produced by and for other similar communities would shed light on whether the differences found initially are specific to the particular sub-communities studied could explore whether the values reflected in those papers suggested that this conclusion holds true for the ___ as a whole.

Content analysis holds dangers as well as promise in ethnographic work. One serious problem arises when ethnographers attempt to content analyze field notes. Smith and Geoffrey (1968) have pointed out that the observer is of necessity selective in recording the myriad events in a classroom setting. The same holds true for virtually any social setting. This gives rise to the "two realities" problem, the fact that field notes contain only a portion of the events which occur in the setting observed. Ex post facto coding of notes or other material for categories of behavior which may not have been equally likely to have been recorded is likely to lead to spurious conclusions (Goetz & LeCompte, 1981). Unfortunately, one frequently finds reference to the coding of field notes in cases in which it is not clear whether the items of interest were specified in advance.

Although advance specification substantially reduces the "two-realities" problem, it certainly does not alleviate it entirely. For example, it is only reasonable to expect that behaviors which are more salient will be noticed and hence recorded more consistently than behaviors which are less salient. In spite of the problems inherent in coding field notes, some qualitative studies of schooling and/or ethnicity have used content analysis effectively (Leocock, 1970; Rist, 1978). The potential of this procedure for enriching ethnographic studies is substantial and has yet to be fully realized.

The Use of Experimental Techniques

All of the quantitative elements discussed so far, including random sampling, quantitative survey and questionnaire techniques, and content analysis have been used by qualitative researchers studying issues relating to education or ethnicity. However, utilization of such techniques tends to be the exception rather than the rule. We will now argue that even experimental work, which is generally seen as the anthithesis of qualitative research, may have a place in basically ethnographic studies in spite of the fact that our broad review of ethnographies on education and ethnicity turned up no examples of this except the work of this paper's first author and a colleague. Specifically, we contend that experimental work can play a useful role within qualitative projects in three special cases: a) when qualitative techniques would require an unacceptably high degree of inference on the researcher's part; b) when one wants to isolate a weak but potentially important linkage between two variables which may be masked by the "blooming buzzing confusion" of the setting studied; and c) when the

natural co-occurrence of two events makes it difficult to know which of them is linked causally to a third event.

A discussion of the way in which an experiment was utilized in a basically qualitative study of peer relations can illustrate these points. One idea which emerged from the first year of this qualitative study was that students tended to react differently to ambiguously aggressive acts on the part of peers depending upon the race of the individual who performed such acts. Specifically, it seemed that mild or ambiguous aggression on the part of blacks was perceived more negatively than similar behavior on the part of whites. If true, this idea had important implications since white students complained frequently and angrily about how aggressive blacks were and their concerns about this substantially influenced peer relations.

Although observers had the impression that mild aggression was interpreted differently depending on who initiated it, it was impossible to verify this impression since it was always possible that very minor nuances in the behaviors which an observer could not accurately gauge, such as small differences in facial expression or the exact amount of pressure exerted when poking a peer, were at the root of this phenomenon. Thus the level of inference required was too high to draw from conclusions based on observational data. Similarly interview data were not considered sufficient to resolve this question since it seemed quite likely that whites' fears of black aggression could influence their perceptions of the behaviors themselves. Complicating this whole issue was that of social class. Since most of the black students were of lower social class than the white students, it was possible that cues connected

with social class were responsible for the fear generated by the mildly aggressive behavior of blacks.

Since the question was important to the developing picture of social relations between black and white students, the level of inference required to draw conclusions on the topic from the qualitative data was unacceptably high and it was of interest to see if race itself was a sufficient cue to lead to differential interpretation of peer's behavior, an experiment was designed and conducted. Black and white children were shown several sketches depicting common mildly aggressive behaviors, such as one student poking another with a pencil. The sketches shown to different students were identical, except that the race of the perpetrator of the aggressive act and the race of its victim were varied. As anticipated on the basis of classroom observation, a number of these mildly aggressive behaviors were perceived as more mean and threatening when performed by a black than when performed by a white. Further, the experiment suggested that regardless of who performed them, certain types of mildly aggressive behavior were perceived differently by whites than by blacks, with whites more likely to see them as threatening and blacks more likely to see them as somewhat playful. This opened up a whole area of investigation which was able to be explored qualitatively in open-ended student interviews and in classroom observation.

Conclusion

Quantitative and qualitative research methods, then, are not diametrically opposed strategies, but rather somewhat different ways of approaching understanding, each with its own strengths and weaknesses. The potential value of combining these two types of methods appears to be

particularly promising for those studying the related areas of ethnic identify and intergroup relations.

Although care must be taken to avoid certain pitfalls in the use of quantitative methods in qualitative projects, there are numerous instances in which quantitative components can be appropriately incorporated into qualitative research projects. Those components particularly suited to inclusion in qualitative projects include systematic sampling procedures, questionnaires, and formal content analysis techniques. While such methods have been used successfully by a small number of qualitative researchers, their potential has not been fully tapped in the broad range of situations in which they could be appropriately employed.

At the moment, little guidance is available for the qualitative researcher interested in the use of quantitative methods. Thus, we have tried to outline some potentially useful techniques for the qualitative researcher and the occasions on which their use may be especially fruitful. Since the potential benefits of combining the two method-types are substantial, we hope that the ideas presented in this paper will stimulate other qualitative researchers to devote more thought to such issues.

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